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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/839,139

04/23/2001

Yoshiyuki Nagai

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07/02/2004

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EXAMINER

LANDAU, MATTHEW C

ART UNIT

PAPER NUMBER

2815

DATE MAILED: 07/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/839,139

Applicant(s)

NAGAI ET AL.

Examiner

Matthew Landau

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 April 2004.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,5-8,13-15,17-25 and 34-36 is/are pending in the application.
- 4a) Of the above claim(s) 17-22 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 34-36 is/are allowed.
- 6) ☒ Claim(s) 1,3,5-8,13-15 and 23-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

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DETAILED ACTION

Election/Restrictions

This application contains claims 17-22 drawn to an invention nonelected with traverse in the reply filed on October 5, 2002. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Drawings

The drawings were received on April 14, 2004. These drawings are acceptable.

Claim Objections

Claim 15 is objected to because of the following informalities: the limitation “said wavelength change mens” in the last paragraph of the claim contains a typo that should be corrected.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 5, 6, 14, 15, and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Aketagawa.

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In regards to claims 1 and 15, Figure 4 of Aketagawa discloses a exposure apparatus using a laser oscillation apparatus comprising: wavelength change means 12 for driving a wavelength selection element (col. 8, lines 11-15) and changing an oscillation wavelength of a laser beam to a target value; calculation means 4 for calculating a drift amount and of the oscillation wavelength generated immediately after oscillation starts; and a controller 52 for determining whether a difference between the oscillation wavelength and the target value exceeds a predetermined value, wherein when the difference does not exceed the predetermined value, said controller controls said wavelength change means on the basis of the calculated drift amount so as to have the oscillation wavelength be the target value, and causes said wavelength change means to oscillate the laser beam without emitting a test laser beam to output the laser beam externally of the apparatus (col. 8, lines 40-67). Aketagawa discloses that if the oscillation wavelength is outside of a first range, but within a second range, the wavelength is adjusted to fall within the first range without closing a shutter or emitting any test beam. It is considered the first range is the “target value” and the second range is the “predetermined value”. Therefore, the claim is fully anticipated.

In regards to claim 3, Aketagawa discloses said calculation means 4 calculates the drift amount on the basis of an oscillation wavelength change amount of the laser beam (col. 8, lines 43-50 and 64-67).

In regards to claim 5, Aketagawa discloses a shutter 3, wherein said controller closes the shutter when the difference exceeds the predetermined value (second range) (col. 9, lines 1-4).

In regards to claim 6, Aketagawa discloses a wavelength measurement means 4 for measuring the oscillation wavelength of the laser beam.

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In regards to claim 14, Aketagawa discloses the laser supplies a KrF laser beam (col. 3, lines 40-42). KrF lasers are excimer lasers.

In regards to claim 25, it is inherent that the calculation means 4 of Aketagawa calculates a drive amount of the wavelength selection element on a the basis of the target value, wherein said controller 52 drives the wavelength selection element by said wavelength change means 36 on the basis of the calculated driving amount, since the amount of movement/adjustment of the wavelength selection element must be determined in order to send the appropriate control signal.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aketagawa in view of Sandstrom.

In regards to claims 7 and 8, the difference between Aketagawa and the claimed invention is the apparatus further comprises an internal environment measurement means for measuring an internal environment (temperature or pressure) of said wavelength measurement means, and said wavelength measurement means is corrected based on the measure internal environment of said wavelength measurement means. Figure 2 of Sandstrom discloses a wavelength measurement means (wavemeter) 12 that includes an internal environment

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measurement means (temperature sensor), wherein the wavemeter is corrected based on the temperature measurement (see abstract). In view of such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of Aketagawa to include the temperature compensation means of Sandstrom for the purpose of obtaining accuracy and stability in the wavelength measurement means output.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aketagawa in view of Bruning et al. (PCT Pub WO/86/00427, hereinafter Bruning).

Aketagawa does not specifically disclose the type of wavelength selection element used in the exposure apparatus. Figures 1 and 3 of Bruning disclose a laser apparatus using a grating 50 as a wavelength selection element. In view of such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of Aketagawa by using a grating for the purpose of selecting a well-known wavelength selection element that can accurately adjust the wavelength.

Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aketagawa in view of Tuganov et al. (US Pat. 6,434,173, hereinafter Tuganov).

In regards to claim 23, the difference between Aketagawa and the claimed invention is the exposure apparatus comprises a display, a network interface, and a computer network for executing network software. Figures 1 and 2 of Tuganov disclose a display 200, a network interface 102, and a computer network 120 for executing network software. Since network 120 is connected to computers (114,116,118), it is considered to be a computer network. In view of

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such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of Aketagawa by including the display, network interface, and computer network of Tuganov. The ordinary artisan would have been motivated to modify Aketagawa in the manner described above for the purpose of automation and decentralized control of the exposure apparatus. Note the intended use limitation “maintenance information of the exposure apparatus can be communicated via the computer network” does not structurally distinguish the claimed invention over the prior art.

In regards to claim 24, the limitation beginning “wherein the network software...” is merely a recitation of intended use. The claim is drawn to an exposure apparatus and not a network. The limitation “external network” is not physically part of the exposure apparatus and does not further structurally define the claimed invention. Therefore, the characteristics of the external network cannot be used to patentably distinguish the claimed invention over the prior art.

Allowable Subject Matter

Claims 34-36 are allowed.

The following is an examiner’s statement of reasons for allowance: the prior art of record, either singularly or in combination, does not disclose or suggest the combination of limitations including a controller for determining whether an idle time for stopping an oscillation exceeds a predetermined value, wherein, when the idle time does not exceed the predetermined value, said controller controls said wavelength change means on the basis of the calculated drift amount so as to have the oscillation wavelength be the target value.

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

Applicant's arguments with respect to claims 1 and 15 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

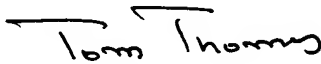
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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew C. Landau whose telephone number is (571) 272-1731.

The examiner can normally be reached from 8:30 AM - 5:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.


TOM THOMAS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

Matthew C. Landau

Examiner

June 29, 2004